

**FIREFIGHTERS' UNIFIED
RETIREMENT SYSTEM
of the
STATE OF MONTANA**

**ACTUARIAL VALUATION
as of June 30, 2005**

Prepared by

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October 4, 2005

Retirement Board
Firefighters' Unified Retirement System
State of Montana

Dear Members of the Board:

At your request, we have completed an actuarial valuation of the Firefighters' Unified Retirement System as of June 30, 2005. Details about the actuarial valuation are contained in the following report.

I certify that the information included in this report is complete and accurate to the best of my knowledge and belief. All calculations have been prepared in accordance with generally recognized and accepted actuarial principles and practices that are consistent with the applicable Standards of Practice adopted by the American Academy of Actuaries.

Milliman has been engaged by MPERA as an independent actuary. The undersigned is a Fellow of the Society of Actuaries, a Member of the American Academy of Actuaries, and an Enrolled Actuary, and is experienced in performing actuarial valuations for large public employee retirement systems.

Actuarial computations presented in this report are for purposes of analyzing the sufficiency of future contributions. Actuarial computations under GASB Statement No. 25 are for purposes of fulfilling financial accounting requirements. The computations in this report have been made on a basis consistent with our understanding of the Retirement Board's funding policies and GASB Statement No. 25. Determinations for purposes other than meeting these requirements may be significantly different from the results contained in this report. Accordingly, different determinations may be needed for other purposes.

Any distribution of this report must be in its entirety, including this cover letter, unless prior written consent is obtained from Milliman.

Respectfully submitted,

Mark O. Johnson, F.S.A., M.A.A.A., E.A.
Principal and Consulting Actuary

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**MONTANA FIREFIGHTERS' UNIFIED RETIREMENT SYSTEM
ACTUARIAL VALUATION AS OF JUNE 30, 2005**

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MONTANA FIREFIGHTERS' UNIFIED RETIREMENT SYSTEM
ACTUARIAL VALUATION AS OF JUNE 30, 2005

ACTUARIAL CERTIFICATION

To the best of our knowledge and belief, this report is complete and accurate and contains sufficient information to fully and fairly disclose the funded condition of the Firefighters' Unified Retirement System as of June 30, 2005.

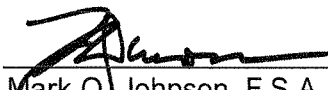
In preparing the valuation, we relied upon the financial information, membership data, and benefit provisions furnished by the System. Although we did not audit this data, we compared the data for this and the prior valuation and tested for reasonableness. Based on these tests, we believe the data to be sufficiently accurate for the purposes of our calculations. It should be noted that if any data or other information is inaccurate or incomplete, our calculations may need to be revised.

The Retirement Board has sole authority to determine the actuarial assumptions and methods used for the valuation of the System. The Board adopted all of the actuarial methods and assumptions used in the 2005 valuation.

The findings have been determined according to actuarial assumptions and methods that were chosen on the basis of recent experience of the System and of current expectations concerning future economic conditions. In our opinion, the assumptions used in the actuarial valuation are appropriate for purposes of the valuation, are internally consistent, and reflect reasonable expectations. The assumptions represent our best estimate of future conditions affecting the System. Nevertheless, the emerging costs of the System will vary from those presented in this report to the extent that actual experience differs from that projected by the assumptions.

The actuarial valuation was prepared in accordance with generally recognized and accepted actuarial principles and practices which are consistent with the applicable Standards of Practice adopted by the Actuarial Standards Board of the American Academy of Actuaries. In addition, the assumptions and methods used meet the parameters set for disclosures by Governmental Accounting Standards Board Statement No. 25.

The undersigned is an independent actuary, a Fellow of the Society of Actuaries, a Member of the American Academy of Actuaries, an Enrolled Actuary, and experienced in performing valuations for large public employee retirement systems.



Mark O. Johnson, F.S.A., M.A.A.A., E.A.
Principal and Consulting Actuary

MONTANA FIREFIGHTERS' UNIFIED RETIREMENT SYSTEM
ACTUARIAL VALUATION AS OF JUNE 30, 2005

SECTION 1
SCOPE OF THE REPORT

This report presents the results of our actuarial valuation of the System as of June 30, 2005.

A summary of the findings resulting from this valuation is presented in Section 2 of the report and the underlying calculations are summarized in more detail in Section 3.

All of the calculations of the valuation were carried out using certain assumptions as to the future experience of the System in matters affecting the actuarial cost. Section 4 summarizes the most important of these assumptions and describes the actuarial methods used to calculate costs.

Section 5 outlines the benefit provisions of the System.

The membership data which were supplied to us are summarized in Section 6.

MONTANA FIREFIGHTERS' UNIFIED RETIREMENT SYSTEM
ACTUARIAL VALUATION AS OF JUNE 30, 2005

SECTION 2
SUMMARY OF FINDINGS AND ANALYSIS OF THE FUNDING LEVEL

The costs of a retirement system are not determined by the actuary. The ultimate costs of a system are determined by adding all of the benefits and expenses that are paid, and subtracting all investment earnings. These costs cannot be determined exactly until the last member or beneficiary has received the final benefit payment due.

The purpose of an actuarial valuation is to provide a timely best estimate of the ultimate costs in order to allocate them to the appropriate generation of members and taxpayers. The ideal goal is for contributions to remain essentially a constant percentage of covered payroll as long as the assumptions and methods reflect the emerging experience of the system and its members with reasonable accuracy.

MEMBERSHIP DATA

We have developed the following comparisons between the membership in this and the prior actuarial valuations:

	<u>June 30, 2005</u>	<u>June 30, 2004</u>
Number of Members		
Retirees and Beneficiaries	504	498
Vested Terminated	13	10
Non-vested Terminated	50	48
Active	<u>444</u>	<u>438</u>
Total Membership	1,011	994

More detailed membership statistics are shown in Section 6.

DETERMINATION OF NORMAL COST

The **Normal Cost** represents the cost assigned to an average member for a given year such that it would meet the continuing costs of that particular benefit, if contributed each year starting with the date of membership. The Entry Age Actuarial Cost Method is designed to produce a Normal Cost that remains a level percentage of salaries, so it is best expressed as a rate.

The following chart shows the Normal Cost from the 2004 valuation compared to the Normal Cost in this valuation. **TABLE 1** provides more details on the Normal Cost.

MONTANA FIREFIGHTERS' UNIFIED RETIREMENT SYSTEM
ACTUARIAL VALUATION AS OF JUNE 30, 2005

	2005	2004
	<u>Actuarial Valuation</u>	<u>Actuarial Valuation</u>
Normal Cost Rate		
Service Retirement	21.86%	21.86%
Disability Retirement	1.98	1.98
Death	1.38	1.38
Withdrawal	<u>.76</u>	<u>.90</u>
Total Normal Cost Rate	25.98%	26.12%

The Normal Cost Rate is expected to remain fairly stable as long as the benefits are not amended, experience emerges as assumed, the demographic characteristics of the membership remain reasonably consistent, and the actuarial assumptions are not changed.

DETERMINATION OF THE ACTUARIAL LIABILITY

The next step in the actuarial valuation process is to project all future benefit payments from the System for current members and retirees. The level of benefits currently being paid is known, but assumptions are needed to estimate how long they will be paid, and the amount and timing of the payment of future benefits for active and inactive members who are not currently receiving payments.

The summation of the discounted values of all of the projected benefit payments for all current members, at the assumed rate of return, is called the **Actuarial Present Value of Projected Benefits**. Details are shown in **TABLE 2** and summarized below.

	2005	2004
	<u>Actuarial Valuation</u>	<u>Actuarial Valuation</u>
Actuarial Present Value of Projected Benefits		
Retired Members	\$ 146,926	\$ 141,439
Inactive Members	1,452	1,455
Active Members	<u>144,887</u>	<u>137,453</u>
Total Value of Projected Benefits	\$ 293,265	\$ 280,347

The **Actuarial Present Value of Future Normal Costs** is the value of all remaining Normal Costs expected to be received over the future working lifetime of current active members. The Actuarial Present Value of Future Normal Costs is subtracted from the Actuarial Present Value of Projected Benefits to arrive at the **Actuarial Liability**, the assets that would exist if the current Normal Cost Rate had been paid for all members since entry into the System, and if all actuarial assumptions had been realized. The following is a summary from **TABLE 2**.

MONTANA FIREFIGHTERS' UNIFIED RETIREMENT SYSTEM
ACTUARIAL VALUATION AS OF JUNE 30, 2005

(\$000)	2005 <u>Actuarial Valuation</u>	2004 <u>Actuarial Valuation</u>
Actuarial Present Value of:		
Projected Benefits	\$ 293,265	\$ 280,347
Future Normal Costs	<u>55,108</u>	<u>52,748</u>
Actuarial Liability	\$ 238,157	\$ 227,599

DEVELOPMENT OF ACTUARIAL VALUE OF ASSETS

The next step in the valuation process is to calculate the **Actuarial Value of Assets** that will be used to determine the funding status of the System. The market value of assets was reported to us as of June 30, 2005. However, because the underlying calculations in the actuarial valuation are long-term in nature, it is advantageous to smooth out short-term fluctuations in the market value of assets.

The asset smoothing method projects an Expected Value of Assets using the assumed rate of investment return, then recognizes the difference between the Expected Value and the Market Value over a four-year period. The calculation of the Actuarial Value of Assets is shown in **TABLE 3** and summarized below.

(\$000)	<u>Gain or (Loss)</u>	<u>Reserve Factor</u>	<u>Smoothing Reserve</u>	<u>Value of Assets</u>
Market Value on June 30, 2005				\$ 153,755
2002-03	\$ (1,144)	25%	\$ (286)	
2003-04	5,693	50%	2,846	
2004-05	(264)	75%	<u>(198)</u>	
Smoothing Reserve			\$ 2,362	<u>(2,362)</u>
Actuarial Value of Assets				\$ 151,393

UNFUNDED ACTUARIAL LIABILITY OR ACTUARIAL SURPLUS

The **Unfunded Actuarial Liability** is the excess of the Actuarial Liability over the Actuarial Value of Assets, which represents a liability that must be funded over time. Contributions in excess of the Normal Cost are used to amortize the Unfunded Actuarial Liability.

An **Actuarial Surplus** exists if the Actuarial Value of Assets exceeds the Actuarial Liability. The calculation of the Unfunded Actuarial Liability or Actuarial Surplus is shown in **TABLE 4** and summarized below.

MONTANA FIREFIGHTERS' UNIFIED RETIREMENT SYSTEM
ACTUARIAL VALUATION AS OF JUNE 30, 2005

(\$000)	2005 <u>Actuarial Valuation</u>	2004 <u>Actuarial Valuation</u>
Actuarial Liability	\$ 238,157	\$ 227,599
Actuarial Value of Assets	<u>151,393</u>	<u>142,109</u>
Unfunded Actuarial Liability or (Actuarial Surplus)	\$ 86,764	\$ 85,490
 Funded Ratio – Actuarial Value	 64%	 62%
 Funded Ratio – Market Value	 65%	 62%

The **Funded Ratio** is equal to the Actuarial Value of Assets divided by the Actuarial Liability. A funded Ratio of 100% means the Actuarial Value of Assets equals the Actuarial Liability, and the System could be financed by contributions equal to the Normal Cost, if all future experience emerges as assumed.

A Funded Ratio over 100% indicates the System has an Actuarial Surplus.

ACTUARIAL GAINS AND LOSSES

Comparing the Unfunded Actuarial Liability as of two valuation dates does not provide enough information to determine if there were actuarial gains or losses. The correct comparison is between the Unfunded Actuarial Liability on the valuation date and the Expected Unfunded Actuarial Liability projected from the prior valuation date using the actuarial assumptions in effect for the one-year period.

TABLE 5 shows the Actuarial Liability as of June 30, 2004, and the elements to project that figure forward to June 30, 2005: The Normal Cost, less benefits paid, plus a charge for interest at the assumed rate of 8% per year. The same table shows the Actuarial Value of Assets as of June 30, 2004, and the elements to project that figure forward to June 30, 2005: The net cash flow (contributions less benefits and expenses), plus a charge for interest at the assumed rate of 8%.

MONTANA FIREFIGHTERS' UNIFIED RETIREMENT SYSTEM
ACTUARIAL VALUATION AS OF JUNE 30, 2005

The following is a summary of the actuarial gains or losses during the one-year period.

	(\$000)
Unfunded Actuarial Liability	
Actual as of June 30, 2004	\$ 85,490
Expected as of June 30, 2005	\$ 85,435
Actual as of June 30, 2005	<u>86,764</u>
Actuarial (Gain) or Loss	\$ 1,329
(Gain) or Loss by Source	
Investment Loss	\$ 3,666
Liability Loss	<u>(2,337)</u>
Net from All Sources	\$ 1,329

CALCULATION OF CONTRIBUTION RATE

The statutory funding rate is tested in the valuation to determine if it is sufficient to cover the Normal Cost Rate plus an amortization payment for the Unfunded Actuarial Liability, if any, over no more than 30 years. The calculations are shown in **TABLE 6** and summarized below.

Rates as a Percentage of Active Member Payroll	2005 <u>Actuarial Valuation</u>	2004 <u>Actuarial Valuation</u>
Statutory Funding Rate	57.65%	57.65%
Normal Cost Rate	<u>25.98</u>	<u>26.12</u>
Available for Amortization	31.67%	31.53%
UAL (Surplus) (\$000)	\$86,764	\$85,490
Years to Amortize	17.6	18.7
Rate of Amortization	31.67%	31.53%
Calculated Contribution Rate		
Normal Cost Rate	25.98%	26.12%
Rate of Amortization	<u>31.67</u>	<u>31.53</u>
Total Contribution Rate	57.65%	57.65%

Based on the assumptions contained in this report, the current statutory funding rate of 57.65% of payroll is sufficient to fund the current and projected benefits from the System.

MONTANA FIREFIGHTERS' UNIFIED RETIREMENT SYSTEM
ACTUARIAL VALUATION AS OF JUNE 30, 2005

DISCLOSURE INFORMATION - GASB No. 25

The disclosure of the Schedule of Funding Progress calculated in accordance with Statement No. 25 of the Governmental Accounting Standards Board and is shown in **TABLES 7 AND 8**.

The Annual Required Contribution is equal to the Statutory Funding Rate of 57.65% for the 2004-05 fiscal year because the statutory funding rate met the parameters of Statement No. 25 in the previous valuation.

MONTANA FIREFIGHTERS' UNIFIED RETIREMENT SYSTEM
ACTUARIAL VALUATION AS OF JUNE 30, 2005

SECTION 3
ACTUARIAL VALUATION RESULTS

The following tables document the findings of the actuarial valuation.

TABLE 1	NORMAL COSTS
TABLE 2	SUMMARY OF ACTUARIAL REQUIREMENTS
TABLE 3	ACTUARIAL VALUE OF ASSETS
TABLE 4	UNFUNDED ACTUARIAL LIABILITY OR ACTUARIAL SURPLUS
TABLE 5	ACTUARIAL GAINS AND LOSSES
TABLE 6	CALCULATION OF CONTRIBUTION RATE
TABLE 7	SCHEDULE OF FUNDING PROGRESS
TABLE 8	SOLVENCY TEST

MONTANA FIREFIGHTERS' UNIFIED RETIREMENT SYSTEM
ACTUARIAL VALUATION AS OF JUNE 30, 2005

TABLE 1
NORMAL COSTS

	<u>2005</u> <u>Actuarial Valuation</u>	<u>2004</u> <u>Actuarial Valuation</u>
Normal Cost Rate		
Service Retirement	21.86%	21.86%
Disability Retirement	1.98	1.98
Death	1.38	1.38
Withdrawal	<u>0.76</u>	<u>0.90</u>
Total Normal Cost Rate	25.98%	26.12%
 Annual Normal Cost (\$000)	 \$ 5,424	 \$ 5,180
 Present Value of Future Normal Costs (\$000)	 \$ 55,108	 \$ 52,748

MONTANA FIREFIGHTERS' UNIFIED RETIREMENT SYSTEM
ACTUARIAL VALUATION AS OF JUNE 30, 2005

TABLE 2
SUMMARY OF ACTUARIAL REQUIREMENTS

(\$000)	2005 <u>Actuarial Valuation</u>	2004 <u>Actuarial Valuation</u>
Retired Members		
Service Retirement	\$ 108,218	\$ 103,900
Disability Retirement	17,950	17,528
Beneficiaries	<u>20,758</u>	<u>20,011</u>
Retired Member Total	\$ 146,926	\$ 141,439
Inactive Members	\$ 1,452	\$ 1,455
Active Members		
Service Retirement	\$ 132,196	\$ 125,026
Disability Retirement	6,114	5,892
Pre-retirement Death	5,240	4,962
Withdrawal	<u>1,337</u>	<u>1,573</u>
Active Member Total	\$ 144,887	\$ 137,453
Present Value of Future Projected Benefits	\$ 293,265	\$ 280,347
Present Value of Future Normal Costs	<u>55,108</u>	<u>52,748</u>
Actuarial Liability	\$ 238,157	\$ 227,599

MONTANA FIREFIGHTERS' UNIFIED RETIREMENT SYSTEM
ACTUARIAL VALUATION AS OF JUNE 30, 2005

TABLE 3
ACTUARIAL VALUE OF ASSETS

(\$000)				
Fiscal Year	Cash Flow	Expected Value	Gain or (Loss)	Market Value
2001-02				\$ 113,874
2002-03	\$ 1,786	\$ 124,841	\$ (1,144)	123,697
2003-04	1,790	135,453	5,693	141,146
2004-05	1,520	154,019	(264)	153,755
Fiscal Year	Gain or (Loss)	Reserve Factor	Smoothing Reserve	
2002-03	\$ (1,144)	25%	\$ (286)	
2003-04	5,693	50%	2,846	
2004-05	(264)	75%	<u>(198)</u>	
			\$ 2,362	
Fair Market Value on June 30, 2005			\$ 153,755	
Less, Asset Smoothing Reserve			<u>(2,362)</u>	
Actuarial Value of Assets on June 30, 2005			\$ 151,393	

MONTANA FIREFIGHTERS' UNIFIED RETIREMENT SYSTEM
ACTUARIAL VALUATION AS OF JUNE 30, 2005

TABLE 4
UNFUNDED ACTUARIAL LIABILITY OR ACTUARIAL SURPLUS

(\$000)	2005 <u>Actuarial Valuation</u>	2004 <u>Actuarial Valuation</u>
<u>Actuarial Value</u>		
Actuarial Liability	\$ 238,157	\$ 227,599
Actuarial Value of Assets	<u>151,393</u>	<u>142,109</u>
Unfunded Actuarial Liability or (Actuarial Surplus)	\$ 86,764	\$ 85,490
Funded Ratio (AV)	64%	62%
<u>Market Value</u>		
Actuarial Liability	\$ 238,157	\$ 227,599
Market Value of Assets	<u>153,755</u>	<u>141,146</u>
Unfunded Actuarial Liability or (Actuarial Surplus)	\$ 84,402	\$ 86,453
Funded Ratio (MV)	65%	62%

MONTANA FIREFIGHTERS' UNIFIED RETIREMENT SYSTEM
ACTUARIAL VALUATION AS OF JUNE 30, 2005

TABLE 5
ACTUARIAL GAINS AND LOSSES

(\$000)	<u>Expected</u>	<u>Actual</u>	<u>(Gain) or Loss</u>
2004 Actuarial Liability	\$ 227,599		
Normal Costs	5,180		
Benefits Paid	(10,487)		
Expected Earnings at 8%	<u>18,202</u>		
Actuarial Liability	\$ 240,494	\$ 238,157	\$ (2,337)
 2004 Actuarial Value of Assets	 \$ 142,109		
Net Cash Flow	1,520		
Expected Earnings at 8%	<u>11,430</u>		
Actuarial Value of Assets	<u>155,059</u>	<u>151,393</u>	<u>3,666</u>
 Unfunded Actuarial Liability or (Actuarial Surplus) as of June 30, 2005	 \$ 85,435	 \$ 86,764	 \$ 1,329
 Summary Actuarial (Gain) or Loss by Source			
Investment (Gain) or Loss			\$ 3,666
Liability (Gain) or Loss			<u>(2,337)</u>
Total Actuarial (Gain) or Loss			\$ 1,329

MONTANA FIREFIGHTERS' UNIFIED RETIREMENT SYSTEM
ACTUARIAL VALUATION AS OF JUNE 30, 2005

TABLE 6
CALCULATION OF CONTRIBUTION RATE

	<u>2005</u> <u>Actuarial Valuation</u>	<u>2004</u> <u>Actuarial Valuation</u>
Statutory Funding Rate		
Members (average)	10.68%	10.68%
Employers	14.36	14.36
State	<u>32.61</u>	<u>32.61</u>
Total	57.65%	57.65%
Normal Cost Rate	<u>25.98</u>	<u>26.12</u>
Funding Rate Available for Amortization	31.67%	31.53%
Unfunded Actuarial Liability (Surplus) (\$000)	\$ 86,764	\$ 85,490
Years to Amortize	17.6	18.7
Rate of Amortization Contribution or (Credit)	31.67%	31.53%
Calculated Contribution Rate		
Normal Cost Rate	25.98%	26.12%
Amortization Payment	<u>31.67</u>	<u>31.53</u>
Total Calculated Rate	57.65%	57.65%

MONTANA FIREFIGHTERS' UNIFIED RETIREMENT SYSTEM
ACTUARIAL VALUATION AS OF JUNE 30, 2005

DISCLOSURE INFORMATION - GASB No. 25

TABLE 7
SCHEDULE OF FUNDING PROGRESS
(DOLLARS IN THOUSANDS)

Actuarial Valuation Date	Actuarial Value of Assets	Actuarial Accrued Liability (AAL)	Funded Ratio	Unfunded AAL (UAAL)	Covered Payroll	UAAL as a Percentage of Covered Payroll
June 30, 1996	\$ 67,745	\$131,111	52%	\$63,366	\$13,783	460%
June 30, 1998	89,988	169,006	53	79,017	15,104	523
June 30, 2000	123,492	162,329	76	38,837	16,549	235
June 30, 2002	136,392	197,946	69	61,554	17,953	343
June 30, 2004	142,109	227,599	62	85,490	20,248	422
June 30, 2005	151,393	238,157	64	86,764	20,474	424

TABLE 8
SOLVENCY TEST
(DOLLARS IN THOUSANDS)

	(1)	(2)	(3)		Coverage Ratios		
Actuarial Valuation Date	Active Member Accounts	Inactive Actuarial Liability	Employer Financed Active Liability	Actuarial Value of Assets	(1)	(2)	(3)
June 30, 1996	\$ 7,876	\$ 60,835	\$62,399	\$ 67,745	100%	98%	0%
June 30, 1998	9,394	96,924	62,718	89,988	100	83	0
June 30, 2000	16,083 ⁽¹⁾	100,260	45,986	123,492	100	100	16
June 30, 2002	18,297	121,922	57,727	136,392	100	97	0
June 30, 2004	20,215	142,894	64,490	142,109	100	85	0
June 30, 2005	21,587	148,378	68,192	151,393	100	87	0

Note:

- (1) Prior to 2000, "active member accounts" included Regular Contributions without interest for active and inactive members. Beginning in 2000, "active member accounts" includes Regular and Additional Contributions with interest, and excludes all accounts of inactive members.

MONTANA FIREFIGHTERS' UNIFIED RETIREMENT SYSTEM
ACTUARIAL VALUATION AS OF JUNE 30, 2005

SECTION 4
ACTUARIAL METHODS AND ASSUMPTIONS

This section of the report describes the actuarial methods and assumptions used in this valuation. These methods and assumptions have been chosen by the Retirement Board based on our recommendations. The Retirement Board has the sole authority to select the methods and assumptions used in this actuarial valuation. The recommendations were formed on the basis of recent experience of the System and on current expectations as to future economic conditions.

The assumptions are intended to estimate the future experience of the System and the members of the System in areas which affect the projected benefit flow and anticipated investment earnings. Any variations in future experience from that expected from these assumptions will result in corresponding changes in the estimated costs of the System's benefits.

In our opinion, the current actuarial methods and assumptions are reasonable and appropriate for this System. The assumptions were developed in accordance with generally recognized and accepted actuarial principles and practices that are consistent with applicable Standards of Practice adopted by the American Academy of Actuaries.

RECORDS AND DATA

The data used in the valuation consist of financial information and records of age, service and income of contributing members, former contributing members and their survivors. All of the data were supplied by the System and are accepted for valuation purposes without audit.

ACTUARIAL COST METHOD

A fundamental principle in financing the liabilities of a retirement program is that the cost of its benefits should be related to when they are earned, rather than when they are paid. There are a number of methods in use for making a determination.

The funding method used in this valuation is the Entry Age Cost Method. Under this method the actuarial present value of projected benefits for each individual member included in the valuation is allocated on a level basis over the earnings of the individual between entry age and assumed exit ages. The portion of this actuarial present value allocated to a valuation year is called the Normal Cost. The portion of this actuarial present value not provided for at a valuation date by the actuarial present value of future Normal Costs is called the Actuarial Liability.

The excess of the Actuarial Liability over the Actuarial Value of Assets is called the Unfunded Actuarial Liability. If the Actuarial Value of Assets exceeds the Actuarial Liability, the difference is called the Actuarial Surplus.

MONTANA FIREFIGHTERS' UNIFIED RETIREMENT SYSTEM
ACTUARIAL VALUATION AS OF JUNE 30, 2005

ASSET VALUATION METHOD

Asset values were supplied by the System and were accepted without audit by us. The Actuarial Value of Assets is the market value, adjusted by a four-year recognition of gains and losses.

INVESTMENT RETURN

The future investment earnings of the assets of the plan are assumed to accrue at a net annual rate of 8.00%, net of all administrative and investment-related expenses.

INTEREST ON MEMBER CONTRIBUTIONS

Interest on member contributions is assumed to accrue at a net annual rate of 5.00%.

FUTURE SALARIES

Estimates of future salaries are based on two types of assumptions. Rates of increase in the general wage level of the membership are directly related to inflation, while individual salary changes due to promotion and longevity, referred to as the merit scale, occur even in the absence of inflation. The assumed increase in future salaries due to general wage growth is 4.25% per year. The merit scale, assumed in addition to general wage growth, is shown below.

<u>Service</u>	<u>Merit Scale</u>
1	7.3%
2	5.6
3	4.4
4	3.5
5	2.8
6	2.2
7	1.7
8	1.3
9	1.0
10	0.7
11-15	0.4
16-20	0.2
After 20	0.0

MORTALITY

The probabilities of mortality are based on the following published tables:

Healthy Retirees and Non-Retired Members

Males 1994 Male Uninsured Pensioner Table (-1)
Females 1994 Female Uninsured Pensioner Table

Disabled Retirees

Males 1994 Male Uninsured Pensioner Table (+3)
Females 1994 Female Uninsured Pensioner Table (+2)

MONTANA FIREFIGHTERS' UNIFIED RETIREMENT SYSTEM
ACTUARIAL VALUATION AS OF JUNE 30, 2005

Beneficiaries

Males 1994 Male Uninsured Pensioner Table (-1)
 Females 1994 Female Uninsured Pensioner Table (-1)

Age	Healthy Members		Beneficiaries		Disabled Retirees	
	Male	Female	Male	Female	Male	Female
50	0.250%	0.154%	0.250%	0.141%	0.385%	0.186%
55	0.428	0.247	0.428	0.224	0.677	0.314
60	0.762	0.477	0.762	0.415	1.234	0.627
65	1.391	0.929	1.391	0.819	2.135	1.157
70	2.336	1.476	2.336	1.367	3.355	1.775
75	3.661	2.439	3.661	2.192	5.399	3.050
80	6.007	4.236	6.007	3.802	8.872	5.285
85	9.636	7.284	9.636	6.557	13.654	9.035
90	14.995	12.502	14.995	11.247	21.333	15.266
95	23.194	20.023	23.194	18.352	30.675	23.619

SERVICE RETIREMENT

The assumed rates of retirement used in this valuation are shown below.

Age	w/ 20 Yrs.	Age	w/ 20 Yrs.
Under 50	10%		
50 - 54	12		
55	15	60	15%
56	15	61	15
57	15	62	15
58	15	63	15
59	15	64	15
		65 & over	100%

All vested terminated members are assumed to retire when first eligible for an unreduced benefit.

MONTANA FIREFIGHTERS' UNIFIED RETIREMENT SYSTEM
ACTUARIAL VALUATION AS OF JUNE 30, 2005

DISABLEMENT

The assumed rates of disablement are illustrated below at specified ages. We further assume that 10% of all disabilities are duty-related. We also assume that all disabilities are permanent, and no disabled member will recover and return to work.

<u>Age</u>	<u>Male</u>	<u>Female</u>
22	-	-
27	0.10%	0.10%
32	0.10	0.10
37	0.10	0.10
42	0.40	0.40
47	0.40	0.40
52	0.40	0.40
57	0.40	0.40
62	0.00	0.00

OTHER TERMINATIONS OF MEMBERSHIP

The assumed rates of termination, other than for retirement, death, or disability, are shown in the following table.

<u>Service</u>	<u>All Members</u>
0	4%
1	2
2	2
3	2
4	2
5-9	1
10-14	1
15 & over	-

MONTANA FIREFIGHTERS' UNIFIED RETIREMENT SYSTEM
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The probability of a terminating member electing a refund of the member account balance is shown in the following table.

Age at Termination	Non-Vested	Vested
Under 35	100%	70%
35 - 39	100	60
40 - 44	100	40
45 - 49	100	40
50 & over	100	-

PROBABILITY OF MARRIAGE

100% of all non-retired members are assumed to be married. Male spouses are assumed to be four years older than female spouses.

Changes in Actuarial Assumptions Made for this Valuation

The following method and assumptions were revised since the last valuation:

Actuarial Methods

- ◆ None

Economic Assumptions

- ◆ None

Demographic Assumptions

- ◆ None

MONTANA FIREFIGHTERS' UNIFIED RETIREMENT SYSTEM
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SECTION 5
SUMMARY OF BENEFIT PROVISIONS

All of the calculations contained in this report are based on our understanding of the benefit and eligibility provisions of the system. The provisions used in this valuation are summarized below for reference purposes.

Normal Retirement	Eligibility:	20 years of membership service regardless of age.
	Benefit:	If hired prior to July 1, 1981, and those not electing GABA – the greater of:
		(a) 2.5% of final average compensation*, multiplied by years of service credit or
		(b) i. If less than 20 years of membership service, 2% of final average compensation*, multiplied by years of service credit ii. If greater than 20 years of membership service, 50% of final average compensation*, plus years of service in excess of 20, multiplied by final average compensation*, multiplied by 2.00%
		If hired on or after July 1, 1981, and those electing GABA, years of service credit, multiplied by final average compensation*, multiplied by 2.50%
	Normal Form:	Monthly benefit for the life of the member, with full benefits continuing to the surviving spouse or dependent children upon the death of the member.
Disability Retirement	Benefit:	(a) If less than 20 years of membership service, 50% of final average compensation*.
		(b) If greater than 20 years of membership service, 2.5% of final average compensation* for each year of service credit.
Death before Retirement	Benefit:	(a) If less than 20 years of membership service, 50% of final average compensation*.
		(b) If greater than 20 years of membership service, 2.5% of final average compensation* for each year of service credit.

MONTANA FIREFIGHTERS' UNIFIED RETIREMENT SYSTEM
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Termination Benefit	Eligibility:	Prior to 5 years of membership service.
	Benefit:	Return of member contributions with interest.
	Eligibility:	5 years of membership service.
	Benefit:	Either (a) or (b) below: (a) Return of member contributions with interest, or (b) Accrued benefit at age 50.
Benefit Adjustments	Eligibility:	Retired members and beneficiaries.
	Benefit:	Greater of (a) or (b) below: (a) An annual adjustment (GABA) of 3.0% commencing on January 1 st , one year after retirement for members hired on or after July 1, 1997, or if elected by the member, or (b) members with at least 10 years of service and who did not elect GABA – 50% of the salary of a newly confirmed firefighter in the city in which the member was employed.
Contributions	Members:	Either (a) or (b) below: (a) 9.50% of members' compensation if hired prior to July 1, 1997, or (b) 10.70% for members hired after June 30, 1997 or electing the GABA.
	Employers:	14.36% of members' compensation.
	State:	32.61% of members' compensation.

*Effective 7/1/2005 for FURS - Final Average Compensation was replaced by Highest Average Compensation

MONTANA FIREFIGHTERS' UNIFIED RETIREMENT SYSTEM
ACTUARIAL VALUATION AS OF JUNE 30, 2005

SECTION 6
SUMMARY OF MEMBERSHIP DATA

The following tables depict the participant data that was used in the valuation. Table 9 is a history of participant characteristics for the System. Table 10 displays the distribution of Active Members by age and service showing average annual salaries. Table 11 is a distribution of the retirees by age, showing average monthly benefits. Table 12 is a distribution of Vested Inactive Members by age.

TABLE 9
MEMBERSHIP HISTORY

	2005	2004	2002	2000	1998	1996
Active Members						
Number	444	438	437	419	426	418
Average Age	40.3	40.3	40.1	40.4	40.6	-
Average Service	12.4	12.4	12.4	13.0	13.4	-
Average Salary	\$45,744	\$44,063	\$39,931	\$37,823	\$35,455	\$32,136
Inactive Members						
Service Retirement	305	299	282	261 ⁽¹⁾	408	382
Disability Retirement	70	71	75	79 ⁽²⁾	14	19
Survivors	129	128	124	128 ⁽³⁾	28	34
Vested Deferred	13	10	6	5	5	4
Non-vested Terminated	<u>50</u>	<u>48</u>	<u>59</u>	<u>52</u>	<u>35</u>	<u>41</u>
Total Inactive Members	567	556	546	525	490	480
Total Membership	1,011	994	983	944	916	898

Notes:

- (1) Beginning in 2000, service retirements exclude members who originally retired on a disability, and beneficiaries of members who died after retirement.
- (2) Beginning in 2000, disability retirements include all members who originally retired on a disability, regardless of their current age.
- (3) Beginning in 2000, survivors include beneficiaries of members who died after retirement, as well as beneficiaries of members who died prior to retirement.

MONTANA FIREFIGHTERS' UNIFIED RETIREMENT SYSTEM
ACTUARIAL VALUATION AS OF JUNE 30, 2005

TABLE 10
DISTRIBUTION OF ACTIVE MEMBERS

Age	Years of Service							
	Under 5		5 to 9		10 to 14		15 to 19	
	Number	Average Salary	Number	Average Salary	Number	Average Salary	Number	Average Salary
Under 25	14	30,558	-	-	-	-	-	-
25-29	42	38,450	2	26,055	-	-	-	-
30-34	38	39,335	37	43,892	2	38,922	1	40,357
35-39	17	36,975	36	42,505	24	45,846	3	46,089
40-44	4	41,332	15	44,658	18	48,070	27	48,116
45-49	1	64,608	4	45,701	16	43,478	29	50,103
50-54	4	56,386	1	29,950	-	-	10	49,047
55-59	1	55,966	1	53,092	-	-	3	47,505
60-64	-	-	-	-	-	-	-	-
65-69	-	-	-	-	-	-	-	-
70 & over	-	-	-	-	-	-	-	-
Totals	121	38,657	96	43,146	60	45,651	73	48,818

Age	Years of Service							
	20 to 24		25 to 29		30 & Up		All Years	
	Number	Average Salary	Number	Average Salary	Number	Average Salary	Number	Average Salary
Under 25	-	-	-	-	-	-	14	30,558
25-29	-	-	-	-	-	-	44	37,886
30-34	-	-	-	-	-	-	78	41,499
35-39	-	-	-	-	-	-	80	42,466
40-44	8	60,184	1	38,790	-	-	73	48,217
45-49	17	56,052	1	40,733	-	-	68	49,848
50-54	13	53,389	24	51,782	4	63,010	56	52,408
55-59	1	36,028	3	55,237	18	59,715	27	56,599
60-64	-	-	2	44,269	2	60,223	4	52,246
66-69	-	-	-	-	-	-	-	-
70 & over	-	-	-	-	-	-	-	-
Totals	39	55,498	31	50,856	24	60,307	444	45,744

MONTANA FIREFIGHTERS' UNIFIED RETIREMENT SYSTEM
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TABLE 11
DISTRIBUTION OF RETIRED MEMBERS

<u>Age</u>	<u>Service Retirees</u>		<u>Disabled Retirees</u>		<u>Survivors</u>	
	<u>Number</u>	<u>Average Monthly Benefit</u>	<u>Number</u>	<u>Average Monthly Benefit</u>	<u>Number</u>	<u>Average Monthly Benefit</u>
Under 40	-	-	1	1,638	3	969
40-44	1	1,741	-	-	2	1,337
45-49	18	1,880	2	1,474	6	1,320
50-54	19	1,787	6	1,506	3	1,246
55-59	66	2,407	21	1,499	6	1,610
60-64	58	2,407	8	1,590	11	1,568
65-69	58	1,978	8	1,490	12	1,220
70-74	34	1,588	11	1,456	13	1,406
75-79	28	1,304	6	1,353	24	1,347
80-84	16	1,213	4	1,489	19	1,297
85-89	6	1,246	2	1,445	17	1,445
90-94	1	1,404	-	-	10	1,431
95-99	-	-	1	1,528	2	1,399
100 & over	-	-	-	-	1	1,374
TOTALS	305	1,972	70	1,489	129	1,373

TABLE 12
DISTRIBUTION OF VESTED INACTIVE MEMBERS

<u>Age</u>	<u>Number</u>
Under 30	-
30-34	2
35-39	3
40-44	2
45-49	2
50-54	-
55-59	4
60 & over	-
Total	13